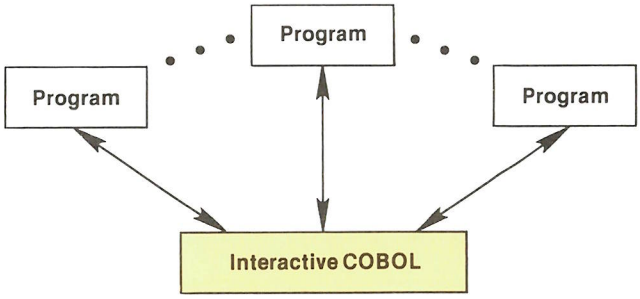
Data General

INTERACTIVE COBOL

PRODUCT BRIEF

FEATURES

- Implements ANSI '74 COBOL
- Runs on Data General CS/40 systems
- Allows sequential, relative and indexed-sequential (ISAM) data access
- Provides record and file lockout for concurrent access control
- Implements screen formatting capabilities for interactive program execution
- Controls multiple DASHER display terminals
- Provides program development aids, including a powerful interactive debugging facility
- Manages system print requirements



DESCRIPTION

Data General's Interactive COBOL language system provides CS/40 users with high-level transaction-oriented business programming capabilities. It is designed for business installations with interactive operational requirements. It provides powerful data management facilities, multiterminal control, extensive program development aids, and an output spooling capability. The system is both efficient and easy to use.

Interactive COBOL programs operate under the CS/40 operating system, adapted from Data General's proven Real-time Disc Operating System (RDOS). The compiler prepares extremely compact object code and provides diagnostic messages in clear English-language statements.

Compiled Interactive COBOL programs execute under the terminal control program, which supports concurrent execution of COBOL programs on multiple terminals and provides powerful routines to execute all COBOL statements. The terminal control program also provides a master command and control capability at the master terminal.

LEVEL 1 ANSI '74 COBOL

Data General Interactive COBOL meets Level 1 1974 ANSI standards as defined in *American National Standard Programming Language COBOL, ANSI X3-23-1974.* It implements the nucleus; table-handling; sequential, relative and indexed sequential (ISAM) data access; and library modules at Level 1.

Several modules contain Level 2 capabilities. It permits sign conditions (numeric identifiers only) and complex conditions (AND, OR, NOT and parenthesis). It supports the standard 96-character ASCII set and floating-point data formats. For structured programming, it supports nested IF statements and the PERFORM verb with the UNTIL condition clause. For use with international currency, Interactive COBOL supports the CURRENCY SIGN IS . . . and DECIMAL POINT IS COMMA statements.

A screen section has been added to the DATA DIVISION for entry and inquiry/response formats. Syntactically, screen interaction is allowed via the ACCEPT and DISPLAY verbs in the PROCEDURE DIVISION. These are natural extensions that provide a powerful facility for handling interactive CRTs.

DATA MANAGEMENT

Interactive COBOL supports sequential, relative and indexed sequential (ISAM) data access. File access lockout is available with sequential access. Relative and indexed sequential access provide file and record lockout under program control. Keys up to 100 bytes long and records up to 4096 bytes long are allowed with indexed sequential access.

Because Interactive COBOL programs can easily open, access, close and even delete data files, data file management is simple and direct.

CONCURRENT ACCESS CONTROL

The EXCLUSIVE OPEN, READ . . . WITH LOCK and UNLOCK statements allow truly effective control of data integrity in a multi-user environment. When checking and updating data, the application program can lock a record or file, preventing access by another program. Using this lockout feature, two programs cannot simultaneously change the same piece of information.

SCREEN FORMATTING CAPABILITIES

The Interactive COBOL language allows a program to fully control the screen display and to accept data keyed into program-defined data fields. With this powerful screen management capability, programmers can construct a large variety of displays, including menus and fill-in-the-blanks data entry formats, for easy user interface.

Using simple Interactive COBOL statements, the exact format of the screen can easily be defined by row and column or relative to other displayed data. The program-defined screen format is displayed at half intensity while entered data is displayed at full intensity for emphasis.

Interactive COBOL includes many efficient built-in features for immediate data field error detection and correction. If the entered data does not meet program-established data formats defined in the PICTURE statement, such as alphabetic, alphanumeric or numeric, an English-language system-generated error message appears on the screen and the cursor is positioned to the first incorrect character in the data field. Data can then be re-entered. The program only receives properly entered data.

Terminal keyboard function keys are definable within the COBOL program. Thus, programmers can customize the keyboard, allowing frequently used system functions to be performed with a single keystroke.

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DISPLAY TERMINAL CONTROL

CS/40 concurrently supports from one to nine terminals (depending on model). Terminals can operate any combination of the same or different COBOL applications programs. The files are online and available to every terminal via suitable applications programs. The terminal control program controls all aspects of terminal communications.

EXTENSIVE PROGRAM DEVELOPMENT AIDS

Interactive COBOL includes full debugging support through an interactive COBOL-oriented debugging capability, English-language error diagnostics and detailed source listings. All these program development aids speed COBOL program preparation and significantly reduce program debugging time.

Source programs are entered and modified using an interactive text editor. Once entered, source files are stored on disc. From there, they are available for editing, compiling or printing by simple keyboard commands.

After program compilation, programmers can test programs immediately with the cobol interactive run-time debugger. Breakpoints allow programmers to examine intermediate processing stages of the program, eliminating the need to write special debugging routines. The debugger uses English-language commands that reference COBOL PROCEDURE and DATA names.

PRINTER ACCESS SCHEDULING SYSTEM

To avoid conflicting print needs, programs can use PASS, our Printed Access Scheduling System, which manages system print requirements. PASS queues all print files so a lead operator can selectively print them according to day-to-day priorities. PASS operates interactively at the master terminal. If the user program decides not to use PASS, files will be printed in first-come, first served order.

INSTRUCTION SET

The following instructions are implemented in Data General's Interactive COBOL:

IDENTIFICATION DIVISION
- PROGRAM—ID.
- AUTHOR.
- INSTALLATION.
- DATE—WRITTEN.
- DATE—COMPILED.
- SECURITY.

ENVIRONMENT DIVISION

CONFIGURATION SECTION
- SOURCE—COMPUTER.
- OBJECT—COMPUTER.
- SPECIAL—NAMES.
  - SWITCH
  - CURRENCY SIGN
  - DECIMAL—POINT IS COMMA.

INPUT/OUTPUT SECTION
- FILE—CONTROL.
  - SELECT . . . ASSIGN TO (DISC / PRINTER / KEYBOARD / DISPLAY)
  - ORGANIZATION IS (SEQUENTIAL / RELATIVE / INDEXED)
  - ACCESS MODE IS (SEQUENTIAL / RANDOM / DYNAMIC)
  - INDEX SIZE IS
  - DATA SIZE IS
  - RELATIVE KEY IS
  - RECORD KEY IS
  - FILE STATUS IS
- I/O CONTROL.
  - SAME RECORD AREA

DATA DIVISION

FD
- BLOCK CONTAINS
- RECORD CONTAINS
- RECORDING MODE IS
- LABEL RECORDS ARE
- DATA RECORDS ARE

DATA DESCRIPTIONS
- LEVELS 01-49, 77
- FILLER
- REDEFINES
- PICTURE
- USAGE IS (COMPUTATIONAL / DISPLAY / INDEX)
- SIGN IS (LEADING / TRAILING) [SEPARATE]
- OCCURS [INDEXED BY]
- JUSTIFIED
- BLANK [WHEN] ZERO
- VALUS IS

SCREEN DESCRIPTIONS
- LEVELS 01-49
- BLANK SCREEN
- BLANK LINE
- BELL
- LINE
- COLUMN
- BLINK
- SECURE
- AUTO
- PICTURE
- BLANK [WHEN] ZERO
- JUSTIFIED

PROCEDURE
- ACCEPT . . . [ON ESCAPE]
- ACCEPT FROM (DATE / DAY / TIME / LINE NUMBER / ESCAPE KEY)
- ADD
- CALL PROGRAM
- CLOSE [LOCK]
- DELETE
- DELETE FILE
- DISPLAY [NO ADVANCING]
- DIVIDE [REMAINDER]
- EXIT
- GO
- IF (RELATION / CLASS / SWITCH—STATUS / SIGN / COMPLEX)
- INSPECT
- MOVE
- MULTIPLY
- OPEN [EXTEND] [EXCLUSIVE]
- PERFORM [VARYING, UNTIL]
- READ [NEXT] [LOCK]
- REWRITE
- SET
- START
- STOP
- SUBTRACT
- UNDELETE
- UNLOCK
- USE
- WRITE [ADVANCING LINES, PAGE]

The materials contained herein are summary in nature, subject to change, and intended for general information only. Details and specifications concerning the use and operation of Data General equipment and software are available in the applicable technical manuals, available through local sales representatives.

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